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**(54) SLIT OF VARIABLE RECTANGULAR TYPE
ELECTRON BEAM EXPOSURE APPARATUS**

(57) Abstract

PURPOSE: To facilitate emission of charges and eliminate position deviations of electron beams by making variable rectangular type electron beam slits with monocrystalline silicon containing impurities at a high concentration.

CONSTITUTION: The electron beam from cathode 2 is passed through a first slit 5 via grating 3 and anode 4 and is imaged onto a second slit 8 by an electron lens 7. At this time, the electron beam is deflected by the

deflector 6 provided near the lens 7 to change the cross sectional size of the rectangular electron beam. After this electron beam is deflected with deflectors 9 and 10, it is scaled-down by an electron lens 11 and is then radiated to the required positions of the object to be radiated 12. Namely, a rectangular hole is formed in a monocrystalline substrate of 10^{15} atom/cm³ in impurity concentration, 10Ω cm in specific resistance, 330Ω in laminar resistance and 300μ m in thickness and an impurity is doped to provide the slit of 10^{20} atom/cm³ in concentration, 5μ m in doping depth, $10^{-3}\Omega$ cm in specific resistance and 2Ω in laminar resistance.

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